



# Applying A Modified Contingent Valuation Method (CVM) For The Preservation/Restoration Of The Lake Kastoria In Northern Greece

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# The aim of this study is...

- To provide policy-makers with much needed information on the economic value of the benefits generated by the sustainable management of the Lake Kastoria.
- The preservation/restoration of natural environment is frequently entailing excessive cost (paid by people through taxation) while it is a source of additional income for both, the State and the people, due to tourism.
- Since the evaluation of this good cannot be in market terms, we apply herein a modified version of the Contingent Valuation Method (CVM),
- which is used in Experimental Economics in order to investigate the significance that people put on this good and how much they might be willing to pay (WTP) for supporting activities concerning the preservation/restoration of Lake Kastoria.

# The WTP dependence on ...

- (i) external diseconomies
- (ii) the expectations for property values' rise as a result of the restoration
- (iii) the proximity of interviewees' residence to the lake
- (iv) the time and money the interviewees spent to visit the lake, as well as other dependencies (all taken as independent variables) are estimated by means of Logit, Probit, Logistic and Linear Regression Models.

# METHODOLOGY

- The sample size was 80 questionnaires
- The non-linear regression models we used are the Probit and the Logit ones
- Probit is a popular specification for an ordinal or a binary response model that employs a link function
- In this model, the response variable  $y$  is binary and may represent a certain condition.

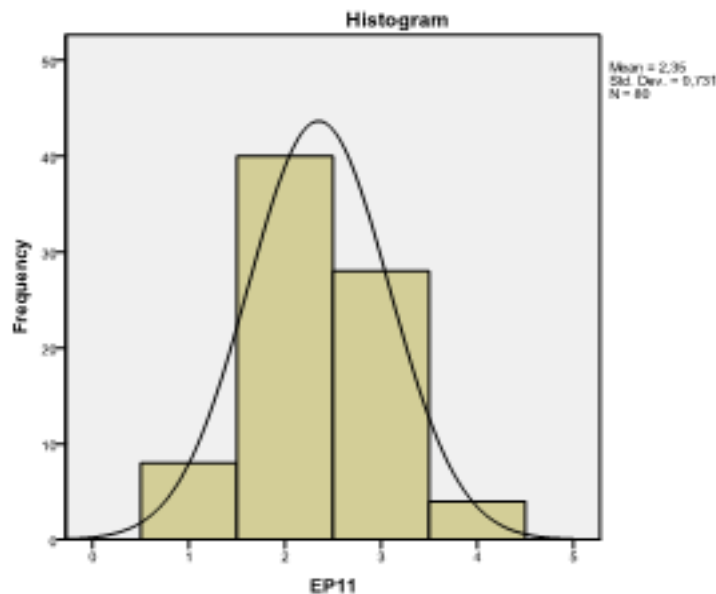
## Results and Discussion

- the survey sample consisted of 51.25% women and 48.56% men
- the majority between 26 and 35 years old, since young people were more willing to participate in the survey
- 27.5% of the respondents hold a university degree, whereas 37.50% had high school education
- the majority of the interviewees belonged to the intermediate income class and enjoy full-time employment
- about 50% of the respondents live or work in close proximity of the lake
- however, average WTP does not differ significantly with proximity or distance

## Results and Discussion

- when respondents were asked to assign a level of importance to the protection of the lake on a 3-point scale (very, enough and slightly), 93.75% placed it at the highest scale and only 5% at the lowest
- whereas they support all of the restoration activities we proposed, with 69.03% giving high priority to biological agriculture
- the participants were also asked to determine the amount of money, among six fixed alternatives and a seventh open option, that each was willing to pay for 12 months to help maintain or even improve the state of the lake,
- the proportion of all respondents who expressed a willingness to pay any amount was 90%
- the mean WTP was 13.16€, while the amount of 5€ was most frequent

# Distribution of WTP and sample summary statistics



Statistics

(N)	80
Mean	2,35
Std. Error of Mean	0,082
Median	2
Mode	2
Std. Deviation	0,731
Variance	0,534
Skewness	0,142
Std. Error of Skewness	0,269
Range	3
Min	1
Max	4

# Regression analysis

- The analysis results found which independent variables are statistically significant at the 5% significance level:
- $X_9$ : the importance of lake Kastoria;
- $X_{12}$ : willingness to pay IFF the respondent was living close to lake;
- $X_{14}$ : accept a compensation to forgo an improvement in lake;
- $X_{19}$ : own property close to lake;
- $X_{28}$ : household income in relation to that of residents of Kastoria.
- The reduced form of the resulting Linear regression function becomes:
- $WTP = 1.164 - 0.27X_9 + 0.82X_{12} - 0.14X_{14} - 0.01X_{19} + 0.11X_{28}$ .



# Discussion Remarks

- The willingness to pay, a so-called ‘restoration fee’, which is actually a ‘user’s fee’
- indicates the possibility of fund raising from the community, especially when lake restoration is linked to tourist economy
- on the other hand, non-use values for the lake, which this study shows to be substantial, can be captured through appropriate policy instruments.

# In conclusion

- Our analysis demonstrates that social science research can provide useful information for complex environmental policy problems such as the restoration of a lake system.
- Policy analysis for such cases is especially difficult because these systems provide multiple, interdependent services that vary by type of lake, location, ecohydrological management, and other factors.
- The work presented herein has been proven a useful comprehensive tool for determining the realistic cognitive burden for stakeholders and third parties.